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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/006,704	12/10/2001	Shane J. Trapp	M4065.0369/P369-A	3229

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DICKSTEIN SHAPIRO LLP
1825 EYE STREET NW
Washington, DC 20006-5403

EXAMINER

UMEZ ERONINI, LYNETTE T

ART UNIT	PAPER NUMBER
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1765

DATE MAILED: 12/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/006,704

Applicant(s)

TRAPP, SHANE J.

Examiner

Lynette T. Umez-Eronini

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 26 and 77-82 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 26 and 77-82 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

This communication is in response to Applicant's Remarks in Amendment, filed 9/29/2006, which were persuasive in showing the formerly applied reference failed to provide a proper in the rejection of claims 26, 77, and 83. Hence, a new Office Action is presented.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 26, 77, 78, 81, and 82 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yang et al. (US 5,976,222).

Yang discloses, " . . . a fluorochemical containing exhaust gas from a semiconductor fabrication facility conducting an etch or clean process step is provided in stream 12 comprising a diluent gas, such as nitrogen, and fluorochemicals comprising potentially NF_3 , SF_6 , CF_4 , CHF_3 , CH_3F , C_2F_6 , C_2HF_5 , C_3F_8 , C_4F_8 , HF , F_2 and mixtures of these gases. Additional components in this mixture include; CO , CO_2 , H_2O , O_2 , CH_4 , SiF_4 , SiH_4 , COF_2 , N_2O , NH_3 , O_3 , Ar , Br_2 , BrCl , CCl_4 , Cl_2 , H_2 , HBr , HCl , He and SiCl_4 (column 7, lines 12). The aforementioned reads on,

A plasma etching composition.

Yet, Yang fails to disclose respectively in claims 26, 77, and 81-82, an example of Applicants' specific combination of two fluorocarbons and ammonia, wherein at least two fluorocarbons are selected from the group consisting of fluorohydrocarbons, chlorofluorocarbon, and chlorofluorohydrocarbons; at least one fluorocarbon, ammonia and oxygen; and at least one of oxygen and nitrogen, in addition to the rest of the limitations of claims 26 and 78.

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to select any combination of etchant gases as taught in the Yang reference, including Applicants' claimed etchants that would effectively accomplish the disclosed composition because these etchants gases are used for etching and cleaning operations in the fabrication of various electronic materials from electronic materials including the construction of integrated circuits (column 5, lines 16-22).

Furthermore, since a gas is matter that occupies space and has random motion

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and since Yang discloses a mixture of etchant gases, then it would have been obvious that Yang's combination of fluorochemical gases and additional gases such as NH_3 and O_2 would result to form a reactive mixture, **as recited in claims 26, 77 and 78.**

4. Claims 79 and 80 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yang (US '222) as applied to claim 78 above, and further in view of Smith (US 6,277,733 B1).

While Yang fails to disclose wherein at least one of said at least two fluorocarbons is CH_2F_2 , **in claim 79** and wherein said at least two fluorocarbons are CF_4 , CHF_3 , and CH_2F_2 , **in claim 80.**

Smith discloses a wafer is subjected to a plasma containing other fluorocarbons, such as C_2F_6 , CHF_3 , CH_2F_2 (column 4, lines 34-37).

Hence, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Yang by selecting any combination of fluorocarbon etchants in the Smith reference for the purpose of removing hydrocarbon residue left on metal structure (column 4, lines 41-43).

Response to Arguments

5. Applicant's arguments, see Remarks, filed 9/29/2006, with respect to the rejection(s) of claim(s) 26 and 77-82 under 35 U. S. C. 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made because the formerly applied reference has failed to provide proper motivation in the rejection of

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claims 26, 77, 78, 81, and 82 under 35 U.S.C. §103(a) over Yang et al. (US 5,976,222), in the last Office Action.

Applicant also argue Yang fails to teach or suggest the limitations of claims 26, 77, and 78 and fails to teach an exhaust gas can be used a plasma etching composition.

Applicant's arguments are acknowledge and unpersuasive because the components of the recovered fluorochemicals in Yang's exhaust comprises the types of gases used for etching and cleaning operations in the fabrication of various electronic materials from electronic material including the construction of integrated circuits (column 5, lines 16-22). Hence, using Yang's chemicals in the same manner as claimed by Applicant would result the same in:

A plasma etching composition comprising: at least two fluorocarbons and ammonia, wherein said at least two fluorocarbons and said ammonia form a reactive mixture, and wherein said at least two fluorocarbons are selected from the group consisting of fluorohydrocarbons, chlorofluorocarbons, and chlorofluorohydrocarbons, **in claim 26;**

A plasma etching composition comprising: at least one fluorocarbon, oxygen, and ammonia, wherein said at least one fluorocarbon, oxygen, and ammonia form a reactive mixture, **in claim 77;** and

A plasma etching composition comprising: at least two fluorocarbons and ammonia, wherein said at least two fluorocarbons and said ammonia form a reactive

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mixture, and wherein at least one of said at least two fluorocarbons are selected from the group consisting of C₄F₈, C₄F₆, C₅F₈, C₃F₈, and CH₂F₂, **in claim 78**.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lynette T. Umez-Eronini whose telephone number is 571-272-1470. The examiner is normally unavailable on the First Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine Norton can be reached on 571-272-1465. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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November 29, 2006

NADINE G. NORTON
SUPERVISORY PATENT EXAMINER

